10: d'Orleans--271-272 T-3 (1891-92) 1894 Laos
116, 248, 286, 402, 462

[LSS: in the village of Ban Sop Huan] "Under the houses the women are busy in various employments, and the young girls are separating the cotton from its grain. They use an ingenious machine for this purpose: a tray is placed upon a support about the level of the waist; above it, two rollers, one of iron and one of wood, turn in contrary directions, as the cotton passes between them it is freed from its impurities, which drop on one side, while the textile fabric falls on the other. One of the rollers is moved with one hand by a simple crank while the other is worked by the foot and a pedal [272] which corresponds with an eccentric, it is also furnished with a flywheel (the machine is made entirely of wood). After the cotton is cleaned it is placed in baskets, about twenty-four inches high and ten wide. When full they are sold for one rupee each.

Elsewhere the spun cotton is being dyed, while other women are making a blue stuff, crossed with yellow threads. They are seated, and use a weaving loom with two pedals, two shuttles, and three small boards. They throw one shuttle after the movement of the two small boards, and the other after the third. Tobacco is being dried on some bamboos and further away another group is winding silk."

-23: Franck--343 T-2 (1924) 1926 Laotians
116, 248, 283, 286

"These Laosian villagers grow their own cotton, and the women spin this and the kapok of their great tropical trees on a crude wheel without a felly, then weave it on handlooms into the garment they wear as skirt or wrapper. Beneath many a house, or under the projecting porch roof at the end of it, may be seen the lady of the family, in the usual comfortable and economical upper garment of nothing at all, leisurely engaged at her household tasks, while others, some of them far from ugly, sit in the shade beneath their pile-raised dwellings weaving their simple wardrobes, in rather striking patterns and of excellent wearing qualities, on the crudest of looms, with a stick shuttle that is thrown back and forth by hand."

245 (bombax and callotropis), tamarind trees, jujube trees, cucumber trees, water chestnuts, etc.

In the north of Laos grow peach trees, plum trees, almond trees, [306] walnut trees, cherry trees, apple trees, pear trees, strawberry plants and medlar trees, the fruits of which are similar in taste to that of their counterparts in Europe, although they are neither as large nor as succulent as the latter.

On the edges of the forest, and sometimes even in the middle, there are also other wild fruit trees reminiscent of the plum tree, the cherry tree, the apple tree (a rose-apple tree with red or green fruits), the fig tree, the quince tree, etc. Their fruits have remained in a wild state or reverted to one because of a lack of adequate care, and are not edible. Their seeds, pits and stones have developed excessively, to the detriment of the pulp which remains tough, bitter or tasteless.

248 249 Finally, opium poppies, tea, ramie, hemp, etc. are cultivated on the plateaus and in the high valleys.

241 Most European vegetables grow in Laos, in the gardens of the Europeans. They are seeded at the end of the rainy season. Early varieties can be harvested and a new crop seeded well into July, but care must be taken to cover the beds during downpours, which occur frequently from May on.

134 137 The forests of Laos may have two characteristic forms, depending on whether the soil is mountainous and composed of clay or limestone, or else flat or slightly sloped and sandy, rocky or stony. In the first case the soil has a high percentage of vegetable matter, is moist and rich in humus and consequently covered with thick forests (Dong or Pa). In the second case it has a low percentage of vegetable matter, is hot and poor in humus and is covered with light forestation (Khok or Pa-hang).

A table contained in the Appendices (No. XX) gives the nomenclature of some sixty varieties of trees on which we have information. In addition to the trees which we cite, we should also note the bamboos, rattans and banana trees.

There are some twenty varieties of bamboo, in which the stalks vary from the size of the little finger to as much as thirty or even thirty-five centimeters in diameter. They sometimes reach a height of twenty meters. 824 There are six or seven varieties of rattan of different grades and sizes, but they are used only for local needs. Among the many wild banana trees, a few varieties such as the "Kok-Koue-Kene" yield a sort of fiber rather like abaca.

137 [307] Although we are able today to evaluate the forest wealth of Laos approximately and to compute its immense commercial value,

249 is that grown in the regions which we have just mentioned. Because of its origin and the name of the two main distribution markets of the trade, it is called Nong-Khay or Vien-Tiane tobacco.

We do not have exact data on the annual production of tobacco in Laos, because of the excessive fragmentation of the plantings and the absence of a crop registry. But information gained from commercial statistics enables us to say that in 1898 exports from the Paklay-Pone-Pissay region reached more than 42 tons. Also, if we attribute to each [276] inhabitant two grams of tobacco per day (this is not an excessive figure) or ten grams per family of five, we find that total consumption in Laos would be from 340 to 345 tons annually, or a total production of about four hundred tons (1).

(1) See Appendix XXIII.

[435 439] The export sale price varies from fifty to a hundred francs per hundred kilograms, depending on the quality.

248 COTTON. Cotton, a herbaceous and annual plant, is cultivated 439 almost everywhere in Laos for local consumption, and particularly in northern Laos for export to Yunnan. In fact, this product is almost the only return cargo for the mule and horse caravans which come in each year from Yunnan-Fou, Tali, S'semao, etc. with tea, furs, iron and copper pots, knick-knacks, etc.

248 The farming methods in northern Laos are as follows. Seeds are placed in pairs in holes which are about ten centimeters deep and spaced at varying distances depending on the region. Stony ground is preferred, on which the brush has been burned away both to clear the land and also [362] to fertilize the soil. No other fertilizer is used except the ashes of the vegetation which covered it.

The seeds are sowed in April or May and usually germinate a few days later. The plantings are harrowed and weeded twice each season, and harvesting is usually finished in November. The cotton is of a mediocre quality, with short staples, but despite this defect it is highly sought-after, as we have seen above, by the Chinese caravans which buy all of the available supply each year at the chief local markets. The height of the plant at full yield does not exceed sixty centimeters, and the yield per kilogram of bolls averages thirty percent or about 300 grams.

248 In southern Laos the cotton fields are small in extent, widely 311 scattered and formed chiefly of narrow strips of alluvial terrain on the

149: Reinach--268 G-3 (no date) 1901 AM1 Indochina
Laotians AM8

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Indigo is grown on the banks of the Mekong and other rivers which are covered by water each year, so that when the waters withdraw they leave behind an alluvial deposit which is quite rich in organic vegetable matter.

The seeds are planted when the rains have completely ceased, that is to say between October and December, depending on the region, and somewhat earlier in the North than in the South.

Germination takes place within a few days, six at the most, and the ground is harrowed and weeded immediately after. At the end of [365] three months the first cutting is made, and this is the most productive one in terms of indigotin. A second cutting can sometimes be made two months later. If the rains are late it is even possible to make a third cutting seven months after the seeds have been planted.

The yield from the plants varies according to the type of terrain, the season and the region. Since plantings of this crop are far too scattered, it is at present impossible [Illustration here] to give the proportionate yield per hectare in terms of stalk weight or volume and weight of liquid indigo and dry indigo, as well as the indigotin content of this product.

Up to the present time this crop has been grown in Laos only to satisfy the country's own needs, without any view toward exporting the product. In view of the diminution of the harvests in Java and Bengal in the last three years, moreover, a diminution which coincides with the appearance of synthetic indigo or industrial indigo, we do not believe that any advantage is to be gained from encouraging the spread of this crop.

CASTOR OIL. Castor oil plant production is limited, since its oil [366] is used only for lighting bonzeries and as a hair dressing. The ordinary variety which grows spontaneously on the banks of watercourses and in cool places is found in Laos, as well as the red castor oil plant and the arborescent castor oil plant. The oil is extracted from the beans by means of pressure.

248

RAMIE. Ramie or the Chinese nettle, China grass, is a kind of urticaceous plant grown chiefly in the highlands by the Phou-Thais, the Khas, the Meos and the Yaos. It is called "Nhia-Gay" in northern Laos and "Pane" in southern Laos.

In April the old roots are buried about .7 meter apart. A month later clumps of twigs sprout and grow.

248 There are three harvests each year. In the first the shoots are .9 meter high, in the second 1.4 meters and in the third 1.6 meters. They yield, respectively, for an area of 14 square meters, 18, 20 and 24 kilograms of fiber.

At harvest time the shrub is split and left to soak in water for three hours, for the fiber is difficult to tear off. The work of decortication takes a long time, and this drawback has so far prevented the cultivation of this crop from spreading although it is an easy one on the whole and not at all exhausting for the soil, since it is possible to grow it twenty years in succession on the same plot of ground.

438 Exports from the provinces of southern Laos were more than fifty tons in 1899. A great deal is used locally, since all the nets used for 248 hunting and fishing are made with this fiber.

Prices are as follows (1):

248 (1) In view of the price at Bassac (37 francs), it would be ad-
435 vantageous to export this product to Cambodia, where it sells for twice as much.

	Per hundred kilograms
Plateau of the Bolovens	25 to 35 francs
Bassac	37 "
Saravane	60 "
Khong	60 to 80 "
Attopeu	30 "
Stung-Treng	54 to 62 "
Pnom-Penh	60 to 80 "

248 [367] HEMP. Hemp is grown in Upper Laos, but only for local consumption. It is used in making string, light rope, nets, etc. A very strong and fairly good-tasting alcohol is also extracted from its seeds. It is called "Pane" or "Nhia-Pane."

241 BATATAS. Various kinds of batatas which are more or less sweet
[262 are grown each year on the banks of the watercourses and in the still
23] moist sandy alluvia. These tubercles are chiefly consumed by the inhabitants, although small quantities are used to fatten certain animals, particularly pigs. The large variety of batata which is round and not very sweet is called "Mane-Phao" and the one which is elongated and sweeter is called "Mane-Keo."

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263 Chinese and Laotian middlemen and even the few European merchants--
438 have found that it brings in rewarding profits. Indeed, by exporting this product the latter are assured of an almost certain gain of 20 to 30 percent.

248 [387] Ramie. There is also much to be gained from increasing
439 the production of ramie or Chinese nettle. It is assured of an outlet in Cambodia, where it sells for as much as 80 francs per hundred kilograms.

219 Cinnamon. The extension of the plantations and gardens of
185 cinnamon trees already in existence in the province of Vien-Tiane deserves serious encouragement. The bark of these trees is a valuable product which is much sought-after in China and in Europe.

276 Opium poppies. The Government of Indo-China, which is
656 both the preparer and seller of chandoo or opium for smoking, is the party which would gain most from obtaining the raw drug on French territory. It is, indeed, still dependent on British India for this product, and can acquire it only on extremely disadvantageous terms.

Since much time must still pass, however, before the Meos and the Yaos give up their age-old methods, it would be essential for the intensive cultivation of the opium poppy to be undertaken by Europeans on behalf of the administration. This would be possible if there were a guaranteed labor supply in the form of Chinese coolies, who would be enlisted primarily for the greater part of the work, and of native specialists who would deal only with scarification of the capsules, harvesting the opium and the first stage of its preparation.

These delicate operations are the ones which the Meos and the Yaos like best, but they dislike plowing, fertilizing, weeding and irrigation, all of which tasks are indispensable for obtaining a high yield of capsules and consequently of the raw drug. It would therefore be best to entrust this heavy work to foreign coolies, and it is probable that after a certain time they too would be capable of extracting the opium. Impelled by their example, the natives would doubtless then be seen to break with their prejudices and devote themselves also to intensive cultivation so as to reap its full benefits.

The role of the administration would then be at an end, and it would gradually diminish its intervention as free cultivation of the poppies increased.

[435 Raw opium which is produced locally or which comes from [388]
neighboring countries is worth 22 francs, 50 centimes to 32 francs, 25 centimes per Kilogram, depending on quality, in northern Laos.